Representing calving and iceberg dynamics in global climate models

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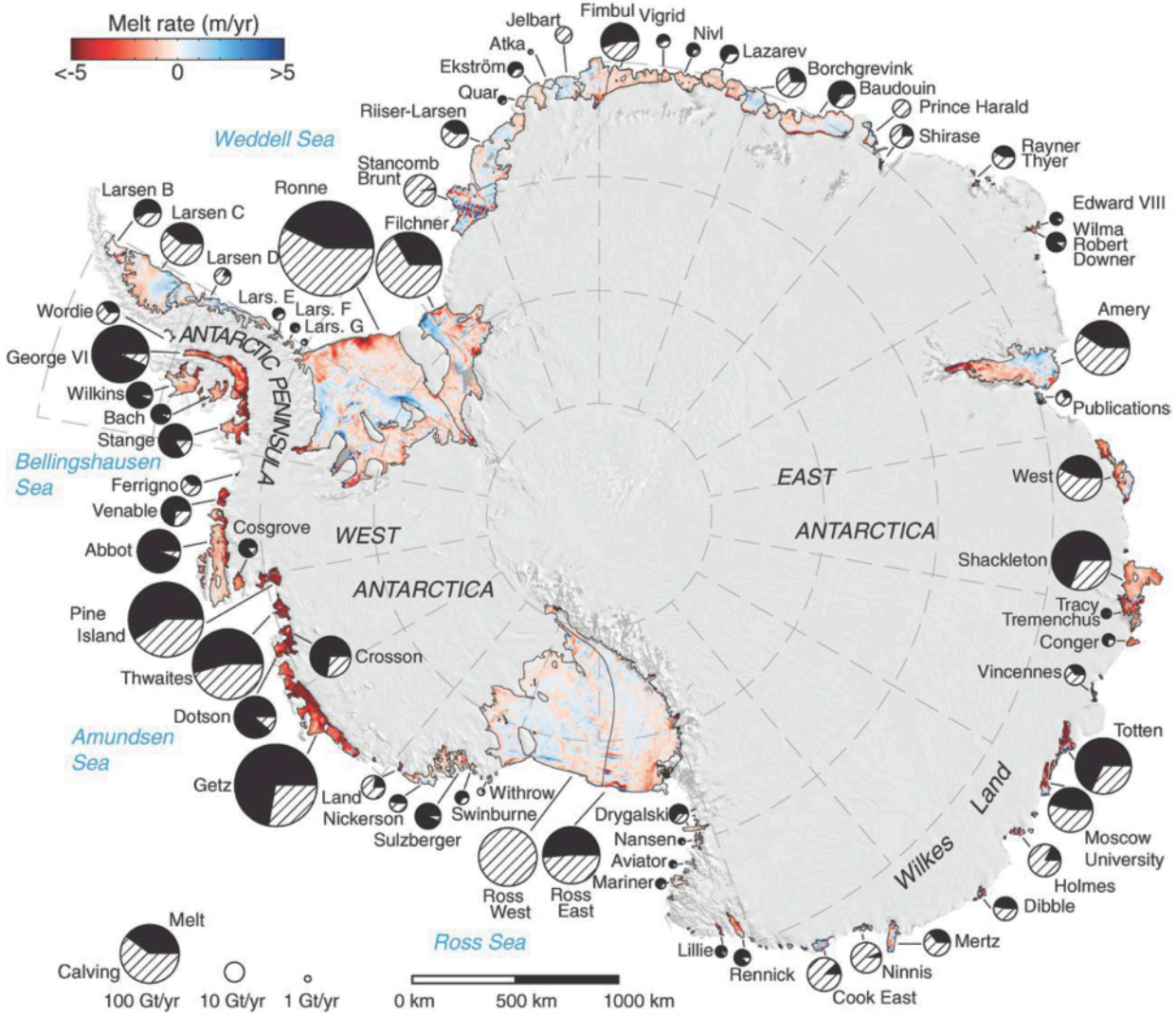
Antarctic mass loss

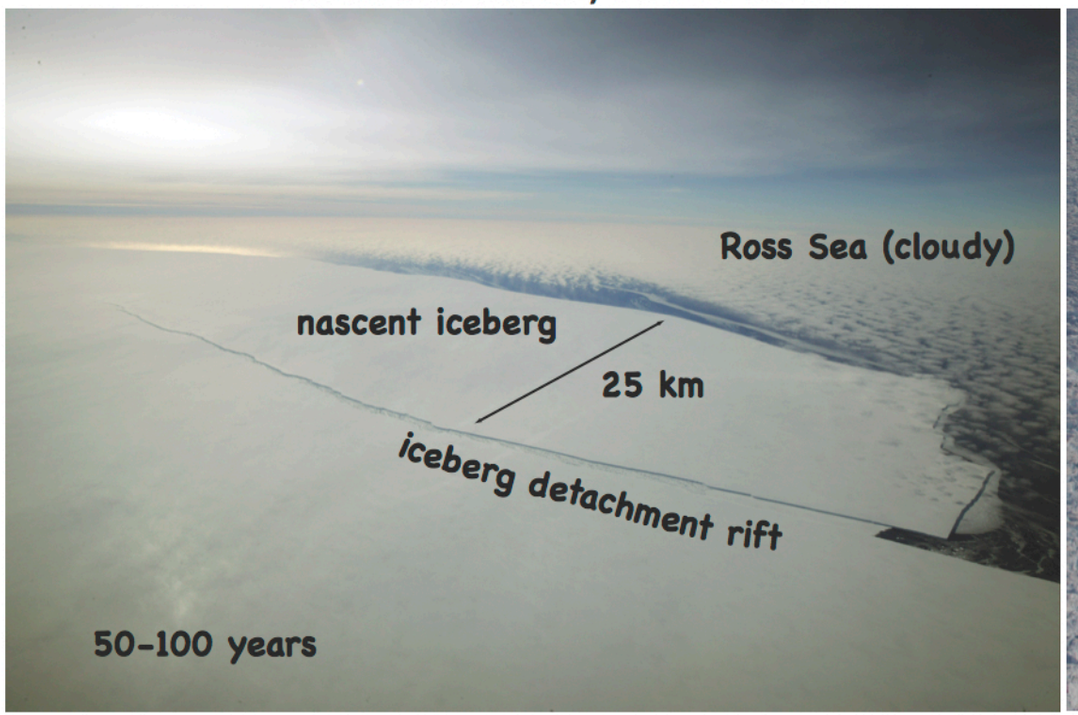


Melting: 45% Calving: 55%

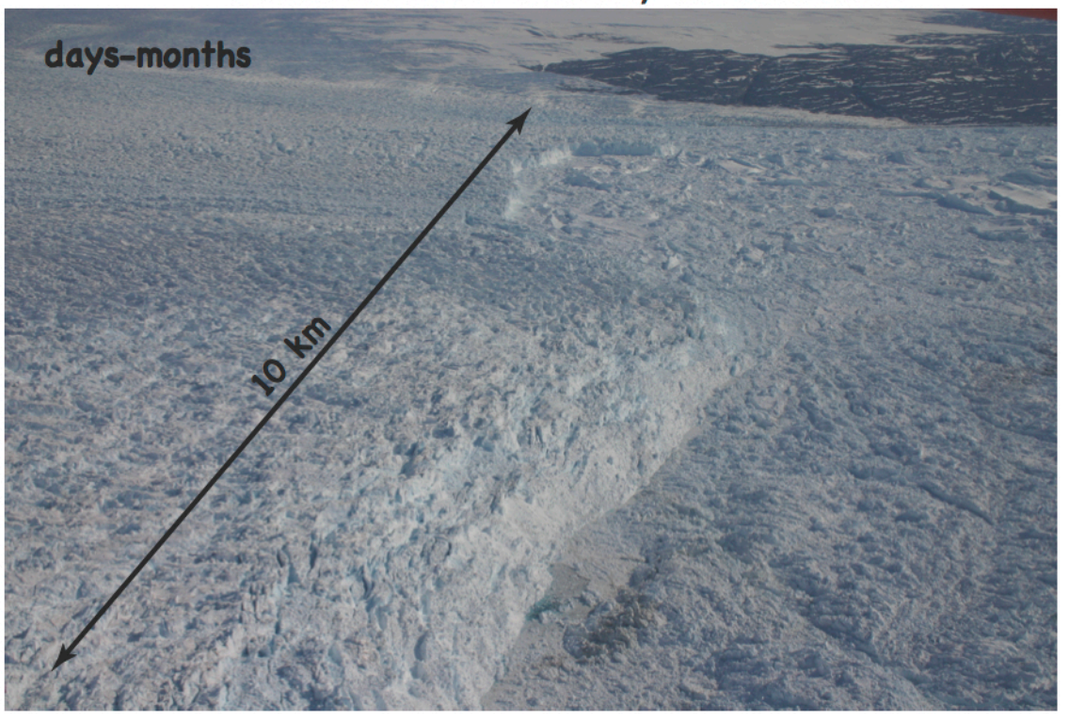
Rignot et al. (2013)

Calving and icebergs

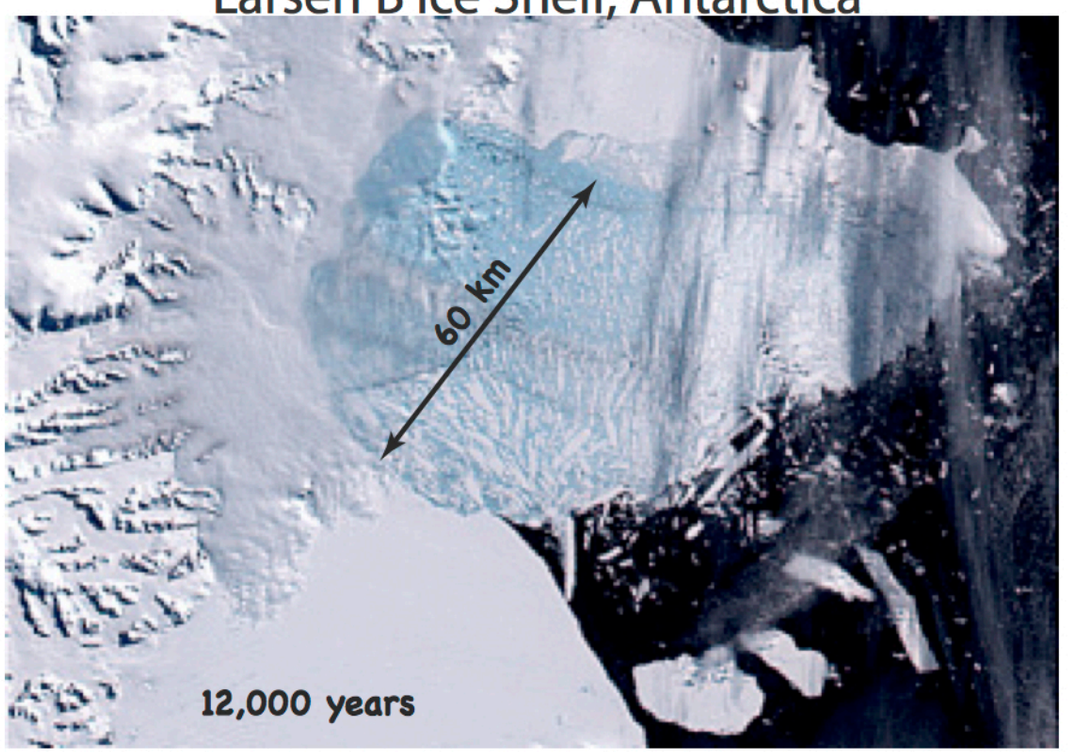
Ross Ice Shelf, Antarctica



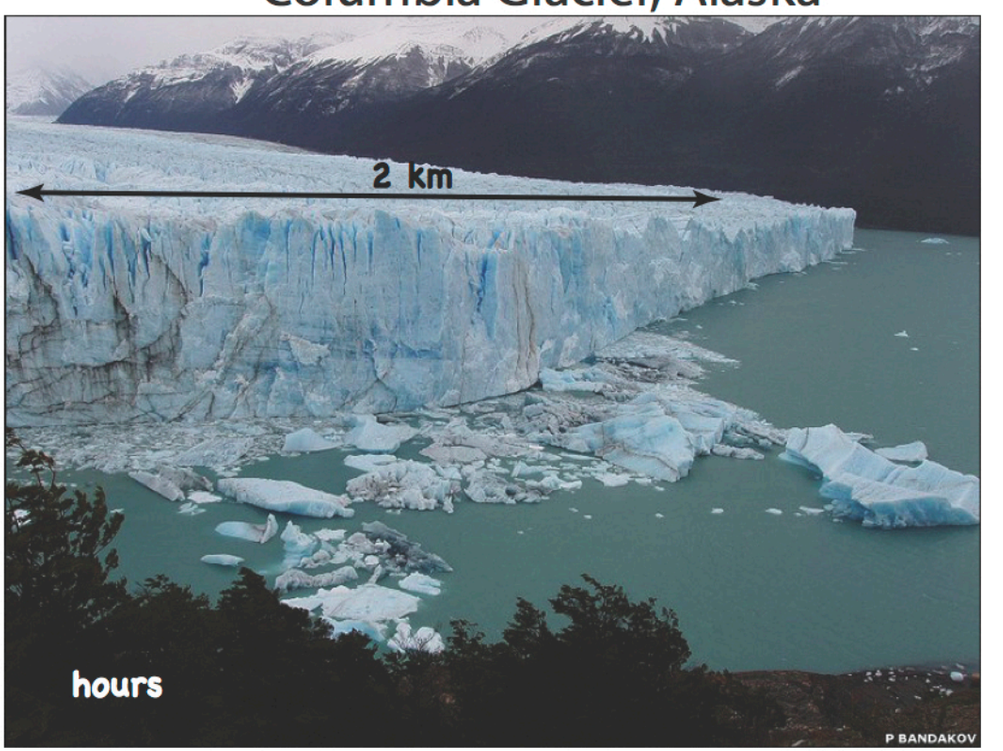
Jakovshavn Isbræ, Greenland



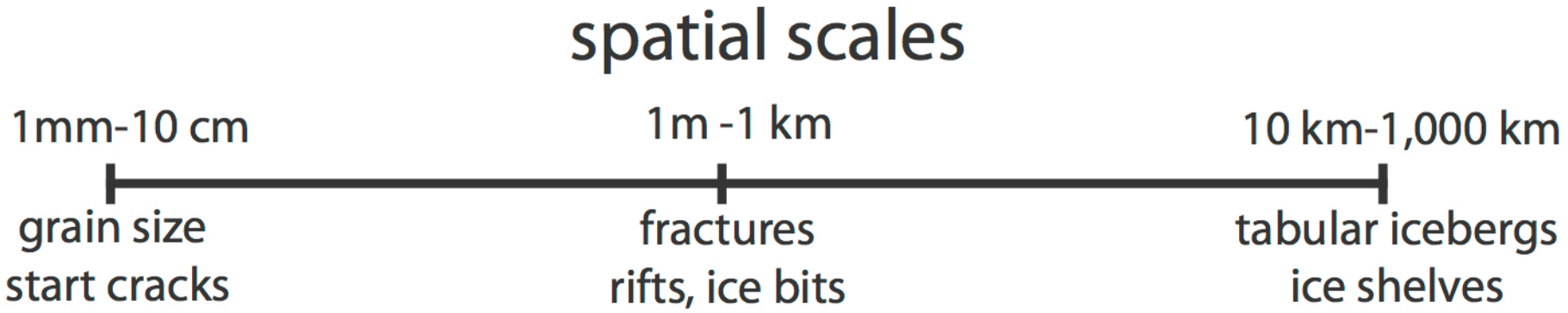
Larsen B Ice Shelf, Antarctica

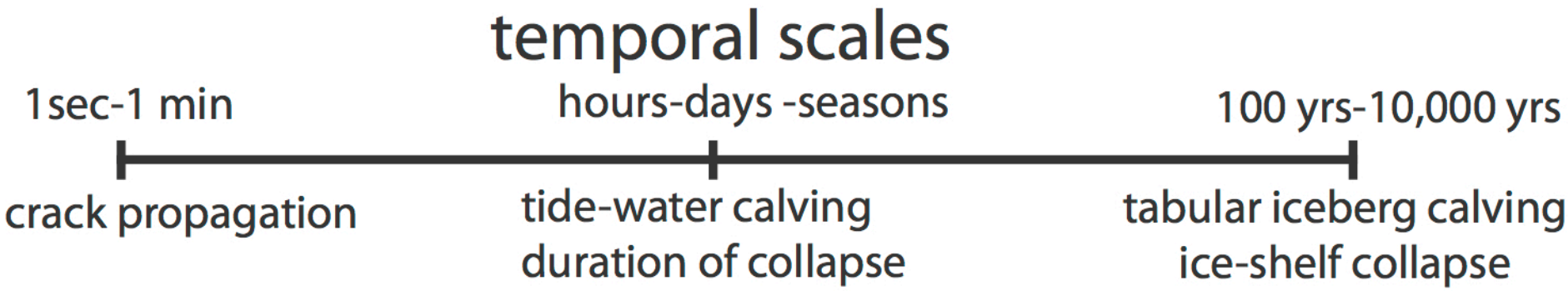


Columbia Glacier, Alaska



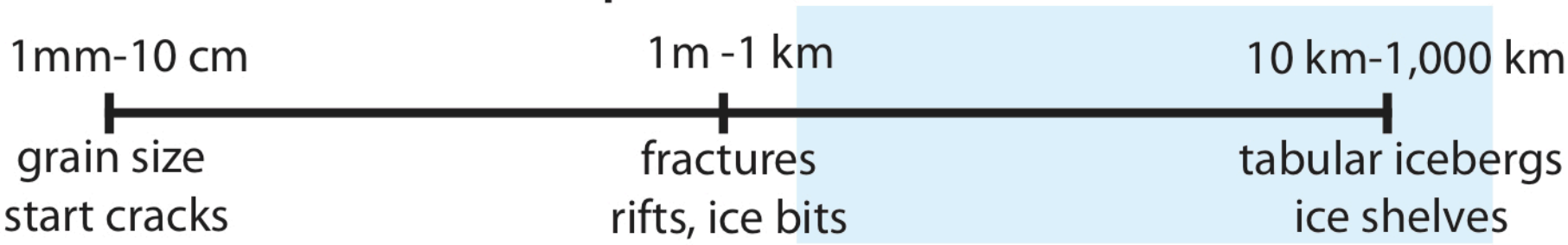
Why is there no "calving law"?



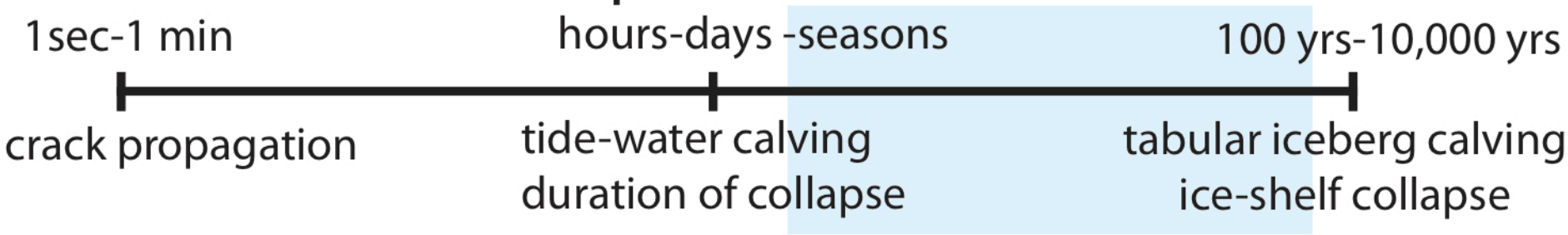


This project

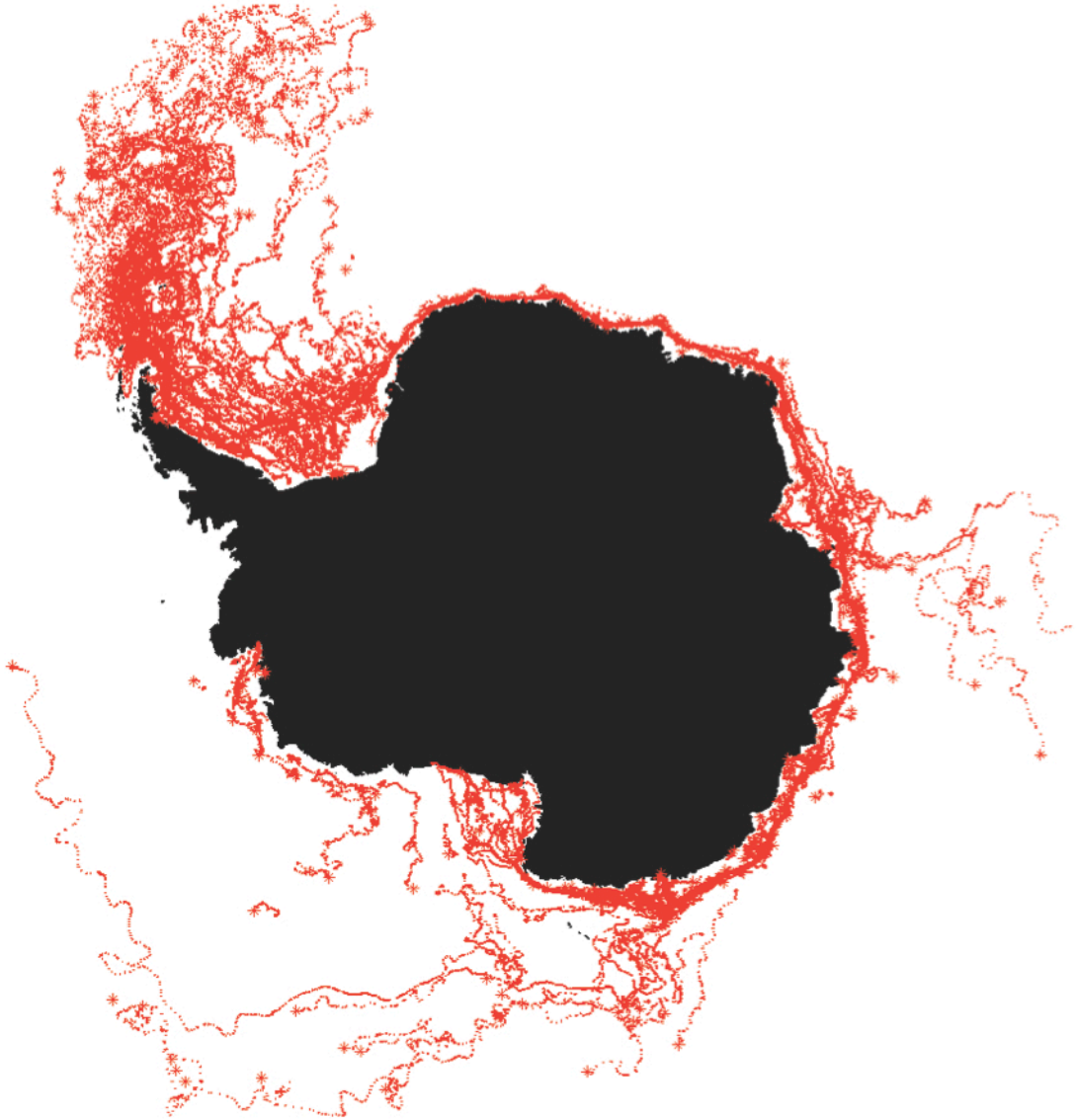
spatial scales



temporal scales



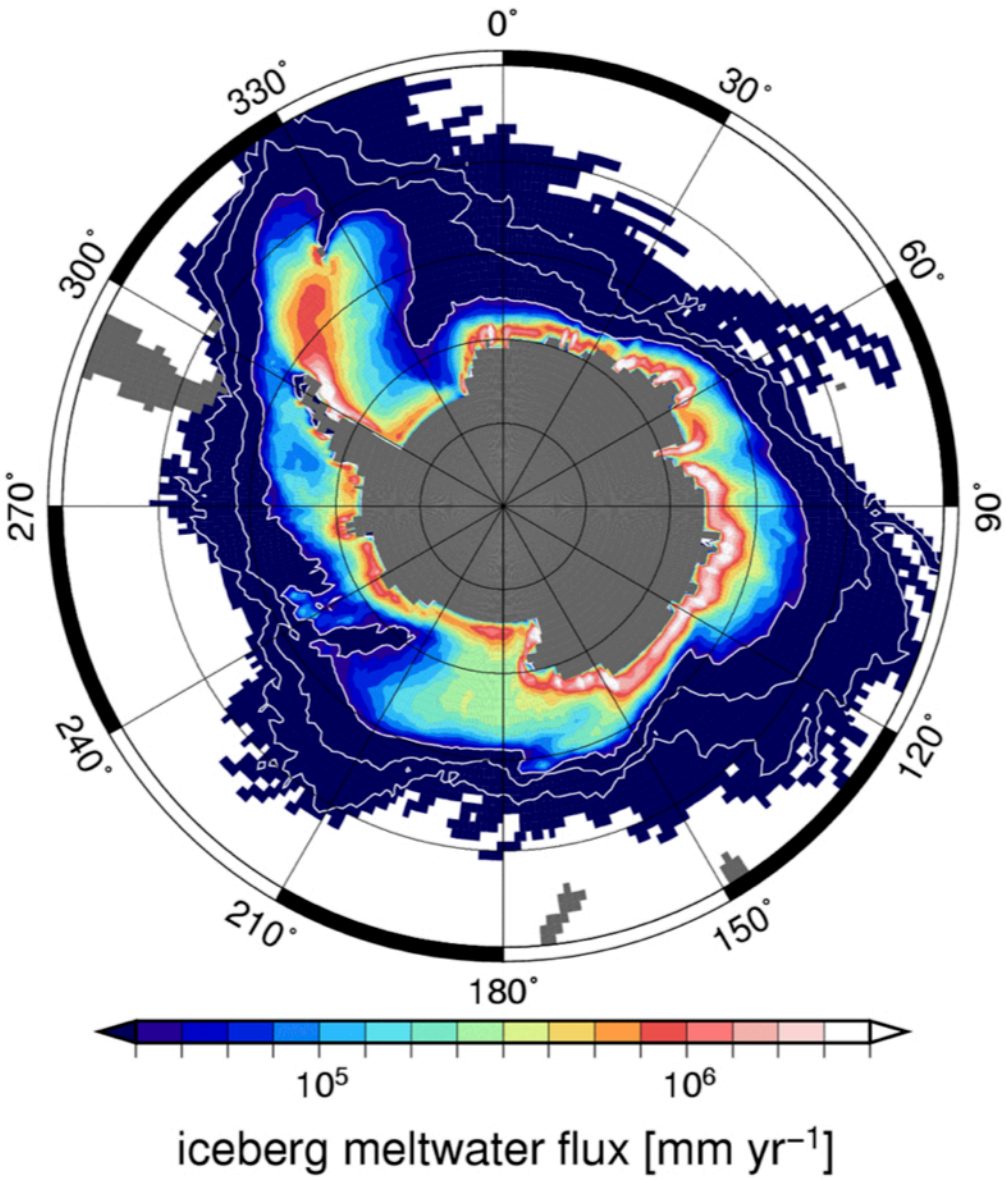
Iceberg tracks (1999-2010)

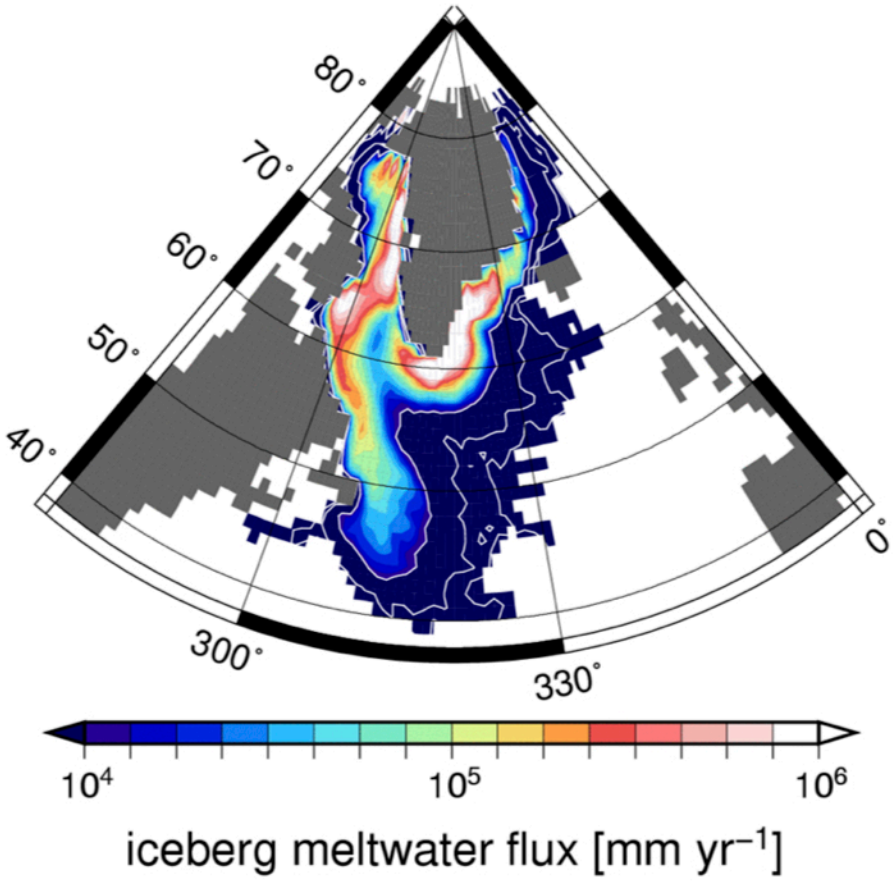


icebergs > 5 km x 2 km
the most southern Jan 7, 2014: ~ 45 S 6W

The Antarctic Iceberg Tracking Database

Iceberg representaion in the GFDL climate model





We plan to do

– Calving parameterizations

– Iceberg-ocean interactions

– Compile available data